

UTILITIES DIVISION[199]

Adopted and Filed

Pursuant to Iowa Code sections 17A.4, 364.23, 476.1, 476.1A, 476.1B, and 476.62, the Utilities Board (Board) gives notice that on September 15, 2010, the Board issued an order in Docket No. RMU-2010-0002, In re: Exterior Flood Lighting, “Order Adopting Rules.” The Board is adopting amendments to 199 IAC 35.15(3) and 36.8(3). The amendments reflect advances in technology that make other forms of outdoor lighting, particularly light-emitting diode (LED) or solid-state lighting, as efficient as some types of high-pressure sodium lighting, which has been used as the standard for energy-efficient exterior flood lighting.

Iowa Code section 476.62, which was enacted in 1989, provides that “[a]ll public utility-owned exterior flood lighting, including but not limited to street and security lighting, shall be replaced ... with high pressure sodium lighting or lighting with equivalent or better energy efficiency as approved in rules adopted by the board.” In addition, Iowa Code section 364.23 provides that

[a]ll city-owned exterior flood lighting, including but not limited to street and security lighting but not including era or period lighting which has a minimum efficiency rating of fifty-eight lumens per watt and not including stadium or ball park lighting, shall be replaced, when worn-out, exclusively with high pressure sodium lighting or lighting with equivalent or better energy efficiency as approved in rules adopted by the utilities board

The Board subsequently adopted rules (199 IAC 35.15(476) and 36.8(476)) to implement the statutes. The rules used a schedule of lumens per watt to determine efficiency. While the rules worked well when high-pressure sodium lighting set the efficiency standard, new technology has evolved to the point that some other forms of outdoor lighting are as efficient as, or more efficient than, high-pressure sodium and may produce a light quality that works better in some uses. The advancement of new technology in outdoor lighting was highlighted by the recent approval of 15 Iowa cities for American Recovery and Reinvestment Act of 2009 funding for energy-efficient projects, which include outdoor LED lighting.

The changes to the rules reflect the technological advances that have been made.

Notice of Intended Action in Docket No. RMU-2010-0002 was published in IAB Vol. XXXIII, No. 1 (7/14/2010), p. 19, as **ARC 8931B**. Written comments were received from the Consumer Advocate Division of the Department of Justice (Consumer Advocate), Interstate Power and Light Company, MidAmerican Energy Company, the Iowa Association of Electric Cooperatives, and Mayfield Lighting Sales, Inc. An oral presentation was held on August 24, 2010.

The oral and written comments were generally supportive of the proposed amendments. The adopted amendments, like the proposed amendments, provide that outdoor lighting must meet one of five alternative tests to be used in place of high-pressure sodium lighting. There were no comments with respect to the first three tests, which are a simplification of the existing requirement in the rules. The current rules reference Table 26-14 in the Twelfth Edition of the Standard Handbook for Electrical Engineers. The Twelfth Edition handbook was published in 1987 and is no longer available for purchase. Table 26-14 listed the rated initial lumens for nine different high-pressure sodium bulbs. After deducting 10 percent from these values, an efficacy rating in lumens per watt can be calculated for each bulb. (As the bulb size increases, so does the number of lumens per watt.) After examining these values, the Board concluded that several lamps of similar size could be grouped together and assigned a single rating; therefore, the adopted rules will have the same effect as the rules they replace, without relying on a reference book that is no longer widely available. In other words, the mercury vapor and standard efficiency metal halide bulbs that do not meet the requirements of the current rules will not meet any of the first three tests in the newly adopted rules.

The intent of the fourth test in the Noticed rules allowing the use of lighting that uses no more energy per installation than comparable high-pressure sodium lighting was to ensure that the proposed rules will not produce results that are contrary to common sense. With the recent advances in lighting technology,

it is impossible to quantify every factor that will lead to a more energy-efficient lighting system. Without the fourth test, well-designed and highly efficient lighting systems might be wrongly excluded if they do not meet the first three tests.

Consumer Advocate was concerned that the fourth test as proposed would unnecessarily limit implementation of new efficient lighting technologies to situations where the new lighting is replacing high-pressure sodium lighting. This was not the intent of the Noticed rule, and the Board will adopt Consumer Advocate's suggestion to replace the fourth test with the following: "The new lighting uses no more energy per installation than comparable, suitably sized high-pressure sodium lighting."

The fifth test is specific to LED or solid-state luminaries. Consumer Advocate recommended in its written comments that the fifth test be eliminated because it could limit the use of high-performing LED lighting. However, after comments made by others at the oral presentation, a consensus developed that the fifth test provides additional flexibility, particularly because only one of the five tests, not all five tests, must be met. The Board has retained the fifth test in the adopted amendments.

The adopted amendments also recognize that a lumens-per-watt efficacy rating may no longer be a good indicator of every lighting system's energy efficiency. Efficacy ratings for outdoor LED lighting systems are measured differently than other lighting systems and should not be directly compared to the efficacy ratings of high-pressure sodium lamps, which do not account for ballast losses or fixture losses. Other factors (such as color quality, lumen maintenance, light distribution, or glare) may also affect a lighting system's performance and ultimately its energy efficiency. As noted by some commenters, there are no nationally adopted standards that account for all of the potential factors that impact the efficiency of exterior flood lighting, making the development of rules more difficult.

The Board does not find it necessary to propose a separate waiver provision in this rule making. The Board's general waiver provision in 199 IAC 1.3(17A,474,476,78GA,HF2206) is applicable to these amendments, which would allow the Board to waive the rules' requirements if the applicant could establish that its proposed lighting system, even if it did not meet one of the five tests, was as efficient as high-pressure sodium lighting. The ability to waive the rules will allow new technological advances in lighting to be used prior to any future rule changes.

These amendments are intended to implement Iowa Code sections 364.23, 476.1, 476.1A, 476.1B, and 476.62.

These amendments will become effective on November 10, 2010.

The following amendments are adopted.

ITEM 1. Rescind subrule 35.15(3) and adopt the following **new** subrule in lieu thereof:

35.15(3) Efficiency standards. Lighting other than high-pressure sodium has equivalent or better energy efficiency if one or more of the following can be established:

- a. For lamps less than 120 watts, the lumens-per-watt lamp rating is greater than 77.1, or
- b. For lamps between 120 and 500 watts, the lumens-per-watt lamp rating is greater than 96, or
- c. For lamps greater than 500 watts, the lumens-per-watt lamp rating is greater than 126, or
- d. The new lighting uses no more energy per installation than comparable, suitably sized high-pressure sodium lighting, or
- e. The new lighting consists of solid-state lighting (SSL) luminaries that have an efficacy rating equal to or greater than 66 lumens per watt according to a Department of Energy (DOE) Lighting Facts label, testing under the DOE Commercially Available LED Product Evaluation and Reporting Program (CALiPER), or any other test that follows Illuminating Engineering Society of North America LM-79-08 test procedures.

ITEM 2. Rescind subrule 36.8(3) and adopt the following **new** subrule in lieu thereof:

36.8(3) Efficiency standards. Lighting other than high-pressure sodium has equivalent or better energy efficiency if one or more of the following can be established:

- a. For lamps less than 120 watts, the lumens-per-watt lamp rating is greater than 77.1, or
- b. For lamps between 120 and 500 watts, the lumens-per-watt lamp rating is greater than 96, or
- c. For lamps greater than 500 watts, the lumens-per-watt lamp rating is greater than 126, or

d. The new lighting uses no more energy per installation than comparable, suitably sized high-pressure sodium lighting, or

e. The new lighting consists of solid-state lighting (SSL) luminaries that have an efficacy rating equal to or greater than 66 lumens per watt according to a Department of Energy (DOE) Lighting Facts label, testing under the DOE Commercially Available LED Product Evaluation and Reporting Program (CALiPER), or any other test that follows Illuminating Engineering Society of North America LM-79-08 test procedures.

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